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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/685,043 | 10/14/2003 | William L. Densham | O2MICRO 00.07 CON | 5684 |

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| EXAMINER | |
|---|---|
| TIBBITS, PIA FLORENCE | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2838 | |

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|---|---|---|---|
| ***Office Action Summary*** | **Application No.**<br>10/685,043 | **Applicant(s)**<br>DENSHAM ET AL. | |
| | **Examiner**<br>Pia F Tibbits | **Art Unit**<br>2838 | |

***-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --***

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *14 October 2003*.
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *7-29* is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *7-29* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *14 October 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a)☐ All b)☐ Some * c)☐ None of:
1.☐ Certified copies of the priority documents have been received.
2.☐ Certified copies of the priority documents have been received in Application No. _____.
3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

This Office action is in answer to the preliminary amendment filed 10/14/2003. Claims 1-6 were canceled, claims 7-29 were added.

### *Priority*

1. Applicant's instant application is a continuation of application 09/960453, which claims priority to provisional application 60/234442. However, the provisional application upon which priority is claimed, 60/234442, is expired.

### *Oath/Declaration*

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

> The oath or declaration is defective because: the signed oath or declaration of record indicates domestic priority to provisional application 60/234442, now expired, and does not mention that the instant application is a continuation of a previously filed utility application.

### *Drawings*

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the PWM generator, the DC/DC converter, the error amplifier must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Specification*

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter: "a difference between said power condition and said associated threshold level". See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction is required.

### *Double Patenting*

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. Claims 7-14 and 16-29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of **patented U.S. Application No. 09/960453** (issue fee paid 9/2/2003)[hereinafter 09/960453] in view of **Gaza** [5764030]. The assignment data for the instant application is not available; to continue prosecution it was assumed that the assignment data is identical with the parent application, since there are no changes to the inventive entity. Although the conflicting claims are not identical, they are not patentably distinct from each other because they describe an adapter for providing an output DC signal, comprising a portable electronic device/external device comprising a rechargeable battery and a charge controller comprising circuitry generating a feedback signal indicative of battery charging power/battery voltage level/battery charging current level; and an external AC/DC adapter generating a DC source signal from an AC source, said adapter comprising a PWM generator generating a PWM signal, and a controller receiving said feedback signal and adjusting a duty cycle of said PWM signal in response to the feedback signal. 09/960453 does not disclose a DC/DC converter.

Gaza discloses in figures 2A and 2B a DC/DC converter circuit where the DC/DC converter circuit voltage (i.e., the output of a power supply 28) on the vertical axis is a function of the highest sensed battery voltage on the horizontal axis; the DC/DC converter circuit provides a constant output voltage $V_1$. The patent also discloses that a power supply recharging different types of batteries would have to provide a constant current or a constant voltage output as a function of the battery characteristics [see also the abstract; column 4, lines 12-26]. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the apparatus disclosed by Patented U.S. Application No. 09/960453 and include a DC/DC converter circuit, as disclosed by Gaza, in order to provide a constant output voltage to an external device that satisfies characteristics of the battery powering the external device.

With regard to claims 12, 22 and 27, Gaza discloses smart battery packs known to include a microcontroller, which allows communication by way of a bi-directional communication line with the battery charger regarding various battery characteristics. Therefore, it is an inherent function of the battery microcontroller to continuously communicate the power condition of the external device and a power requirement of its active systems, and MPEP 2100 states that the disclosure of a limitation may be expressed, implicit or **inherent.**

With respect to the method claim 23-29: the method steps will be met during the normal operation of the apparatus described above.

2. Claim 15 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of **patented U.S. Application No. 09/960453** (issue fee paid 9/2/2003) and **Gaza**, as described above, and further in view of **Bryson** [6144187].

09/960453 and Gaza disclose an adapter for providing an output DC signal, comprising a portable electronic device/external device comprising a rechargeable battery and a charge controller comprising circuitry generating a feedback signal indicative of battery charging power/battery voltage level/battery charging current level; and an external AC/DC adapter generating a DC source signal from an AC source, said adapter comprising a PWM generator generating a PWM signal, a controller receiving said feedback signal and adjusting a duty cycle of said PWM signal in response to the feedback signal, and a DC/DC converter. 09/960453 and Gaza do not disclose an error amplifier configured to compare a signal representative of the power condition of the electronic device to an associated threshold level, wherein the controller provides said feedback signal in response to a difference between said power condition and said associated threshold level.

Bryson discloses a power error amplifier controlling a PWM, a PWM comparator adjusting the duty cycle of the switches, and regulating the total power/associated threshold level drawn from a charger. The loop determines whether the total power available from an adapter is sufficient to provide both the load and battery charging needs. If not, the charging power to the battery is reduced by the amount needed to keep the total demand within the AC/DC output power limit of the adapter [see also column 5, line 22-52]. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify (09/960453 and Gaza)'s apparatus and include a power error amplifier, as disclosed by Bryson, in order to keep the total demand within the AC/DC output power limit of the adapter powering the charger..

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 7-14, 16, 17, and 19-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gaza** [5764030].

Gaza discloses in figures 1-15 a power management topology for portable electronic devices comprising portable electronic devices powered by **rechargeable batteries** 24 and 26 charged by **battery charger** 20 through the **battery charger circuit** 22. During charging of the two batteries 24, 26, **power dissipation measurements for the power supply** 28 and the power transistors $Q_1$ and $Q_4$ are made every interrupt cycle. Should the power dissipation of either the power supply or the power transistors $Q_1$ and $Q_4$ exceed acceptable levels, the charging current is controlled to cause the power dissipation to be within acceptable limits (column 3, lines 1-16). The battery charger circuit 22 is adapted to be utilized with a **power supply/AC adapter** 28. The AC adapter may include a step-down transformer T, (fig. 2) with its primary winding adapted to be connected to a 120/240 VAC voltage supply. A conventional **rectifier** RECT, electrically coupled to the secondary winding of the transformer $T_1$, converts the unregulated AC voltage at the transformer secondary winding to an unregulated DC voltage. The unregulated DC voltage is input to a **DC/DC converter** circuit illustrated in fig.2B. Fig.2A represents a characteristic diagram for the DC/DC converter circuit illustrating the DC/DC converter circuit voltage (i.e., the output of the power supply 28 on the $P_1$ terminal) on the vertical axis as a function of the highest sensed battery voltage on the horizontal axis. The DC--DC converter circuit provides a constant output voltage $V_1$ up to a sensed battery of $V_{BATT1}$. Above a battery voltage of $V_{BATT1}$, the power supply 28 produces a coupled output, adding a fixed voltage to the highest sensed voltage up to a second power supply voltage $V_2$, that corresponds to a battery voltage $V_{BATT2}$. Above $V_{BATT2}$, the power supply maintains a constant output voltage of $V_2$. As shown in fig. 1, the **power supply/AC adapter** 28 includes **three terminals**; $P_1$, used for **charging batteries** 24 and 26; $P_2$, used for **monitoring the voltage/feedback** of the batteries 24 and 26; and $P_3$, used for **system ground**.

Power to the batteries 24, 26 is under the control of a pair of power transistors $Q_1$ and $Q_4$, by way of a pair of diodes $D_3$ and $D_4$. The diodes $D_3$ and $D_4$ prevent the batteries from back feeding the circuitry during non-charging conditions. The power transistors Q1 and Q4 are under the control of a pair of **pulse width modulators** (PWM). Both PWMs are driven by the microcontroller 30 and in particular the terminals Xo and X1, which are an input/output port.

With regard to the particular location of the pulse width modulators, i.e., with the power supply/AC adapter, absent any criticality, is only considered to be an obvious modification as it has been held by the courts that there would be no invention in shifting the location of a structure of a device to another location if the operation of the device would not thereby be modified. ***In re Japikse***, 86 USPQ 70.a)

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Gaza**, as described above, in view of Bryson, as described above.

Gaza discloses an AC adapter/power supply for providing an output DC signal, comprising a portable electronic device/external device comprising a rechargeable battery and a charge controller comprising circuitry generating a feedback signal indicative of battery charging power/battery voltage level/battery charging current level; and an external AC/DC adapter generating a DC source signal from an AC source, said adapter comprising a PWM generator generating a PWM signal, a controller receiving said feedback signal and adjusting a duty cycle of said PWM signal in response to the feedback signal, and a DC/DC converter. Gaza does not disclose an error amplifier configured to compare a signal representative of the power condition of the electronic device to an associated threshold level, wherein the controller provides said feedback signal in response to a difference between said power condition and said associated threshold level.

Bryson discloses a power error amplifier controlling a PWM, a PWM comparator adjusting the duty cycle of the switches, and regulating the total power/associated threshold level drawn from a charger. The loop determines whether the total power available from an adapter is sufficient to provide both the load and battery charging needs. If not, the charging power to the battery is reduced by the amount needed to keep the total demand within the AC/DC output power limit of the adapter [see also column 5, line 22-52]. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Gaza's apparatus and include a power error amplifier, as disclosed by Bryson, in order to keep the total demand within the AC/DC output power limit of the adapter powering the charger..

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Gaza**, as described above, in combination with **Irvin** [6029074].

Gaza discloses a power management topology for portable electronic devices comprising portable electronic devices powered by rechargeable batteries charged by a battery charger through the battery charger circuit, using a power supply/AC adapter to provide power, and PWM to adjust the duty cycle of the DC voltage supplied to the portable devices. Gaza does not disclose signal demodulation circuitry.

Irvin discloses in fig.1 that received signals picked up by the antenna 30 of a mobile terminal are **demodulated** and decoded by the receiver 24 (column 4, lines 3 and 4). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to include a demodulator/receiver in Gaza's system, as disclosed by Irvin, in order to be able to decode signals from a mobile terminal interfacing with the system.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

## *Conclusion*

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in PTO-892 and not mentioned above disclose related apparatus.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Pia Tibbits whose telephone number is (571) 272-2086. If unavailable, contact the Supervisory Patent Examiner Mike Sherry whose telephone number is (571) 272-2084.

10. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center receptionist whose telephone number is (571) 272-2800.

Papers related to Technology Center 2800 applications only may be submitted to Technology Center 2800 by facsimile transmission. Any transmission not to be considered an official response must be clearly marked "DRAFT". The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Center Fax Center number is (703) 872-9306.

PFT

March 13, 2004